MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2017/2018

EES3016 – ENGINEER AND SOCIETY

(All Section / Groups)

11 OCTOBER 2017
2.30 p.m - 4.30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 5 pages (including the cover page) with 5 Questions only.

2. Attempt all of the **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

Question 1

(a) Coal burning is a conventional way to generate electricity in Malaysia. Although there are many advantages of using coal energy, it has major damaging impacts on the environment. Therefore, renewable energies are regarded as sustainable way of electricity generation.

(i) List TWO (2) advantages of using coal energy.

[2 marks]

(ii) Describe briefly TWO (2) major damaging environmental impacts by using the coal burning method.

[3 marks]

(iii) Explain briefly the meaning of Renewable Energies.

[1 mark]

(iv) Suggest ONE (1) renewable resource that is used in Malaysia to reduce the dependencies of coal in electricity generation. Also, elaborate ONE (1) advantages and ONE (1) limitation faced in using these resources in Malaysia.

[4 marks]

(b) You are a Product Engineer in Company ABC, taking care of promoting multiple products into different countries. In order to analyze the overall standard cost of living of any country, you need to use the Gross Domestic Product (GDP) per capita and Purchasing Power Parity (PPP). PPP currency rates are considered more accurate than exchange rates because exchange rates are usually influenced by multiple factors.

(i) Why is it important to measure GDP?

[1 mark]

(ii) What is PPP currency rate?

[1 mark]

(iii) Explain briefly TWO (2) importance of PPP currency rate.

[2 marks]

(iv) Explain briefly why PPP rates are often difficult to determine.

[2 marks]

(v) List TWO (2) factors that influence the exchange rates of a country.

[2 marks]

Continued .....

Question 1

(b)

(vi) Table 1 shows the forecasted currency exchange rate and inflation rate for the United States (US) and Malaysia, in the upcoming year 2018. Calculate the new exchange rate for the upcoming year in 2018.

[2 marks]

Table 1

Current Exchange Rate	4.8 RM = 1 USD
Forecasted Inflation Rate in Malaysia	7%
Forecasted Inflation Rate in US	4%

Question 2

(a) A new kind of "Innovation Engineering" that will serve society at the strategic and humanitarian level as well as the technical and operational level is needed in this new century. Engineers play a critical role in innovation and in improving society.

(i) Explain briefly the meaning of "Innovation Engineering". Why is Innovation important?

[3 marks]

(ii) Describe FOUR (4) critical roles of an engineer in the society.

[4 marks]

(b) Malaysia needs to pay more attention to both training and retaining engineers. Engineers should be retained in Malaysia when vibrant, innovative companies working at the leading edge of technology are allowed to develop and prosper. Explain briefly FOUR (4) strategies that could be used to achieve this.

[4 marks]

(c) Engineers will need to deal with ever-increasing Globalization and find ways to prosper within an integrated international environment and meeting new challenges.

(i) Explain briefly the meaning of Globalization.

[2 marks]

(ii) Explain briefly the TWO (2) advantages and TWO (2) disadvantages of Globalization.

[4 marks]

(d) Explain briefly the misunderstanding of World Trade Organization (WTO).

[3 marks]

Continued .....

Question 3

(a) Discuss TWO roles of an employee in following the Occupational Safety and Health Act (OHSA).

[4 marks]

(b) Discuss FOUR importance of implementing safety standards in all engineering construction, projects and consultation.

[12 marks]

(c) State the importance of using Personal Protective Equipment (PPE) at the workplace.

[4 marks]

Question 4

(a) Discuss TWO reasons why it is important for practicing engineers to register with an engineering regulatory body like Board of Engineers Malaysia.

[4+4 marks]

(b) State the Engineering Code of Ethics applicable in each scenario below. For each scenario, discuss briefly the impact of these actions by engineers:

(i) Use of low quality material for a pedestrian bridge construction.

(ii) Receiving money assistance to secure a tender.

(iii) Providing consultancy in a filed outside expertise.

[4+4+4 marks]

Continued .....

Question 5

(a) Shamala, an engineer employed by HRF Sdn. Bhd. (HRFSB), is requested to do a safety check in an area of the company premise where painting works are being done. The painting is part of HRFSB's preparation in anticipation of a visit by an overseas investor.

During the safety check, Shamala discovers that one part of the scaffolding used by contractors who are painting the company building is partially damaged. However, Shamala does not report the finding to the management because she assumes the painting work will not be postponed in anticipation of the investor visit.

(i) Citing ONE suitable Code of Engineering Ethics, discuss the impact of the action by Shamala in not reporting the damaged scaffolding.

[5 marks]

(ii) Suggest the sequence of actions that should have been taken by Shamala after discovering the damaged scaffolding.

[5 marks]

(b) Ir. Mickey runs a private civil engineering consultancy in Kuala Lumpur.

In May 2015, Ir. Mickey is employed by the City Council to design a bridge as part of an elevated highway system. Due to work and time constraint, Ir. Mickey finds that he has insufficient time to prepare the required design.

Ir. Mickey then requests the assistance of his junior consultant engineer, Ir. Daud, to design and verify the weight loading aspects of the bridge. Ir. Daud's design contribution is not recorded in the meetings between Ir. Mickey and the City Council.

Subsequently, the bridge was successfully built and completed in May 2016. Ir. Mickey was paid for the services offered to the City Council.

In September 2016, the bridge suffers substantial cracks due to overloading. Luckily, no fatality or injury was reported. Ir. Mickey was later called for an inquiry by the Board of Engineers (BEM) to explain his design and why it was flawed.

Citing TWO suitable Code of Engineering Ethics, discuss the implication of the action of Ir. Mickey in NOT recording the contributions of Ir. Daud in the bridge design.

[10 marks]

End of Paper